

(12) UK Patent Application (19) GB (11) 2 181 210 (13) A

(43) Application published 15 Apr 1987

(21) Application No 8524627

(22) Date of filing 5 Oct 1985

(71) Applicant

Cadenas Iris SA,

(Incorporated in Spain),

Iparraguirre, 2-Eibar (Guipuzcoa), Spain

(72) Inventor

D. Luis Ma Cendoya Elorza

(74) Agent and/or Address for Service

Hyde Heide & O'Donnell, 146 Buckingham Palace Road,
London SW1W 9TR

(51) INT CL⁴
F16H 7/08

(52) Domestic classification (Edition I)
F2Q 2T2A2 2T2A3

(56) Documents cited

GB 1387094

GB 1091320

GB 1285528

GB 0696588

GB 1279526

EP A10106325

(58) Field of search

F2Q

Selected US specifications from IPC sub-class F16H

(54) Belt or chain tensioning device

(57) A belt or chain tensioner comprises a housing having a main body portion (1) within which a carrier (21) provided with a tensioner head (20) is longitudinally slidable, and a bracket portion terminating in an upper flange (11) for mounting purposes. A cooperating key and keyway arrangement is provided to prevent rotation of the carrier (21) within the housing body (1). A spring 5 urges the carrier (4) outwardly and a locking pawl (4) engaging teeth (211) on the carrier (21) permits carrier movement in one direction only.

Fig.1

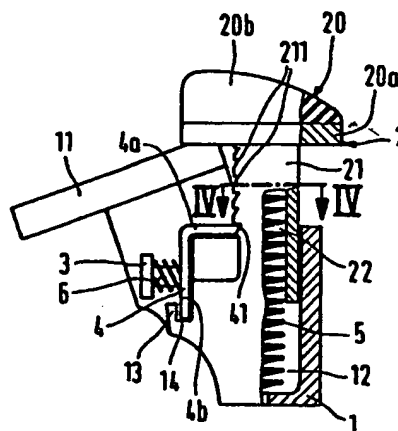


Fig.1

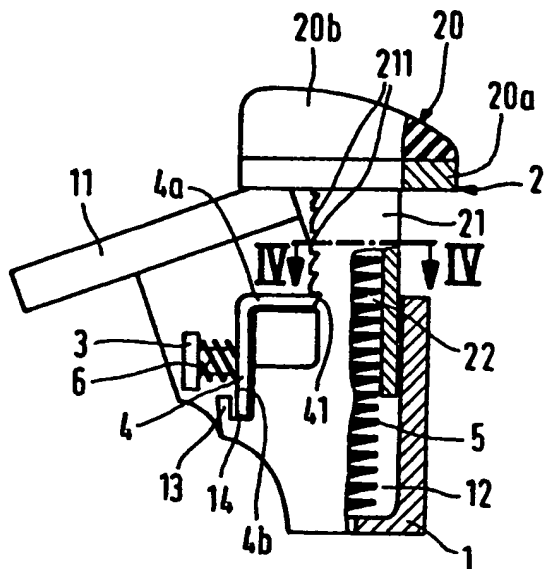


Fig.2

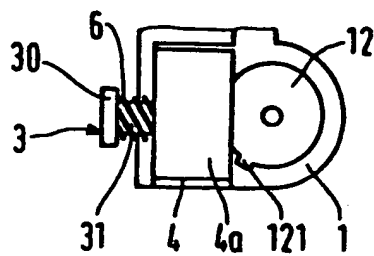
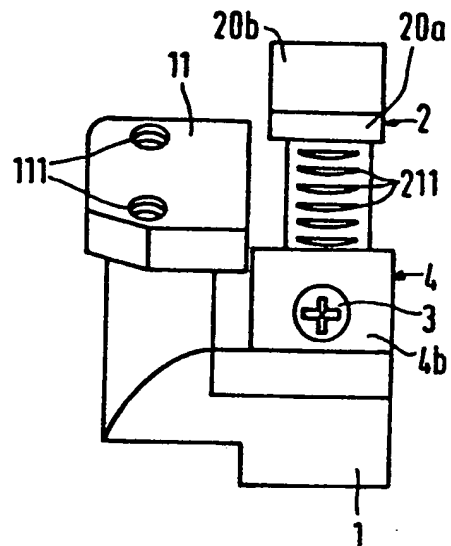


Fig.3

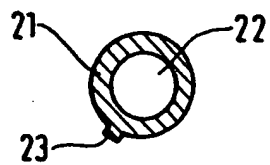


Fig.4

SPECIFICATION

An improved tensor for chains, drive belts and the like

5 Tensors at present known possess the following disadvantages:

- a) They fail to provide continuous and even tightening;
- 10 b) Their scope for varying the attachment position (vertical, horizontal or at an angle) is limited;
- c) an excessively large number of components is required in their construction;
- d) rotation between the tensor body and the bed plate or frame cannot be prevented without restricting axial movement;
- 15 and others described hereinafter and which are overcome by this invention.

20 *Figure 1* is an elevational view of an improved tensor for chains, drive belts and the like in accordance with this invention, showing all its components and features.

Two partial sections are shown in this figure, of which the upper depicts the construction of the head (20) and the lower depicts the fittings for attachment of the tensor body (2) upon the bedplate (1) and self-travelling spring (5).

Figure 2 is a side view upon the above figure.

30 *Figure 3* is a plan view from the section shown in *Figure 1*.

In this figure, the chain body (2) has been omitted for the sake of improved clarity, and the spring (5), which comprises the means for self-travel, is not shown either.

35 *Figure 4* is a plan view of the tensor body (2) across the section shown in *Figure 1*.

Spring (5) has been omitted from this figure too for the sake of improved clarity.

The improved tensor for chains, drive belts and the like covered by this invention is made up from the following essential parts:

- a bedplate (1)
- a tensor body (2)
- a self-travelling spring (5)
- 45 - a non-return pawl (4)

The bedplate (1) is comprised as a single component which possesses two areas at angles to one another, of which one is a main portion (1), and the other is an elbowed bracket.

50 Said elbowed bracket terminates in a top flange (11) possessing threaded holes (111). This top flange is set at right angles or substantially at right angles to its elbowed bracket, and at an angle to the main portion so that the assembly can be attached vertically, horizontally or slopingly to a fixed point.

The main portion possesses a hollow (12), which is either closed or provided with a small throughgoing bore, to house the self-travelling spring which is guided by body (21) of the tensor (2).

60 Said tensor (2) is comprised of a main body (21) and a head (20). Main body (21) possesses an internal hollow (22), and on the outside it possesses a set of unidirectional teeth (211). Head (20) is comprised of two parts, of which one (20a) is metallic for the base, and the other (20b) is made of rubber and is located

upon the former. Said rubber head (20b) serves as the body upon which the chain, drive belt or the like to be tightened rides and rubs, and it can be readily replaced in the event of wear.

70 Pawl (4) is shaped like an upturned "L", whose arms (4a) and (4b) lie upon the main portion (1), and it is located on same by means of a screw (3). It is allowed a certain amount of play by a spring (6) which lies against the body (31) of screw (3) and abuts with the head (30) of same and the pawl (4).

75 Pawl (4) is finally positioned upon body (1) by means of the tip of its vertical arm (4b) being inserted into a location slot (14) provided for this purpose of said body (1), this slot being formed between the body (1) and flange (13) incorporated therein.

80 Arm (4a) has a uni-directional bevel (41) upon one of its tips, which engages with uni-directional teeth (211), which are arranged to allow the body to travel freely in one direction, that is to say, upwards as viewed in the figures, and to prevent it from travelling in the opposite direction.

In order to prevent any rotation between tensor body (2) and bedplate (1), a key (23) and keyway (121) are provided, and in the construction as illustrated, keyway (121) is formed in the inner wall of hollow (12), while key (23) is embodied into the wall of main body (21), but without altering the essential features of the invention at all, they may equally well be arranged the opposite way about.

95 With this construction as described, operation takes place as follows:

- (a) the assembly is secured to a fixed point by means of the top flange (11). Tensor head (20) lies in the horizontal vertical or sloping position with respect to its fixed support (not shown).
- 100 (b) the chain or drive belt is tightened steplessly, since spring (5) thrusts tensor body (2), and in the event of wear from use of the rubber head (20b), pawl (4) allows it to rise by releasing slope (41) from its arm (4a) and the uni-directional teeth (211) on the main body (21). In the opposite direction, pawl (4) prevents body (2) from moving downwards, whereupon the chain or drive belt is kept tight;
- 105 (c) body (2) is prevented from rotating about body (1) by the key (23) and key-way (121) arrangement.

CLAIMS

1. An improved tensor for chains, drive belts and the like peculiar inasmuch that it is comprised of a bedplate in a single part which defines two areas lying at an angle to one another, one being a main portion and the other an elbowed bracket with respect thereto, inasmuch that said elbowed bracket terminates in a top flange for attaching the assembly horizontally, vertically or slopingly to a fixed point, and inasmuch that the main portion possesses arrangements for the attachment of a tensor body as such with means for preventing rotation of itself about the bedplate, and means for uni-directional self travel against the pull of the chain or drive belt to be tightened in such a way that same is kept tight evenly and steplessly.
- 115
- 120
- 125

2. An improved tensor for chains, drive belts and the like in full accordance with the preceding chain,
- 130

and peculiar wherewith said arrangements for the attachment of a tensor body to the bedplate is a hollow that is either closed or provided with a small throughgoing bore, and wherewith said means for preventing rotation are comprised of a key and key-way of which the former is on the tensor body and the latter in the inside wall of the enclosed hollow in the bedplate or vice-versa, so as to prevent the tensor body from revolving about the bedplate without jeopardizing its freedom of axial travel.

3. An improved tensor for chains, drive belts and the like in full accordance with the preceding claims and peculiar insofar as the means for self-travel are comprised of a spring that is housed inside the enclosed hollow and abuts with the bottom wall of same and with the tensor body, a uni-directional pawl attached to the bedplate and allowed to rock through a limited angle, and a plurality of uni-directional teeth upon the tensor body, all arranged in such a manner that said body thrusts against the chain or drive belt to be tightened due to the action of a spring in one direction, whilst the uni-directional pawl prevents any accidental return in the opposite direction.

4. An improved tensor for chains, drive belts and the like substantially as herein described.